

Claims

1. A process for preparing tricyclodecanedialdehyde by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture at elevated temperature and under superatmospheric pressure in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.
2. The process according to claim 1, wherein the hydroformylation is carried out at a concentration of the rhodium catalyst, calculated as Rh, of from 2 to 20 ppm by weight in the hydroformylation medium.
3. The process according to claim 1 or 2, wherein the hydroformylation is carried out at a reaction temperature of from 105 to 115°C in the first reaction zone and at a reaction temperature of from 130 to 140°C in the subsequent reaction zone.
4. The process according to any of claims 1 to 3, wherein the hydroformylation is carried out in two reaction zones.
- 25 5. The process according to any of claims 1 to 4, wherein the reaction temperature in the subsequent reaction zone is at least 15°C higher than in the reaction zone preceding it.
- 30 6. A process for preparing tricyclodecanedimethanol by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture at elevated temperature and under superatmospheric pressure in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium to form tricyclodecanedialdehyde, subsequent separation of the rhodium catalyst from the tricyclodecanedialdehyde and hydrogenation of the tricyclodecanedialdehyde by means of a gas comprising molecular hydrogen at elevated temperature and under superatmospheric pressure over a heterogeneous catalyst, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the

subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.

7. A process for preparing diaminomethyltricyclodecane by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture under superatmospheric pressure and at elevated temperature in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium, subsequent separation of the rhodium catalyst from the tricyclodecanedialdehyde and reductive amination of the tricyclodecanedialdehyde at elevated temperature and under superatmospheric pressure over a heterogeneous catalyst in the presence of a gas comprising molecular hydrogen and ammonia, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.
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